

ABSTRACT OF THE DISCLOSURE

A method of producing a semiconductor device by dividing a semiconductor wafer into separate pieces of semiconductor chips. This method includes forming a
5 groove with a pattern according to an outer contour of a desired semiconductor chip, holding the semiconductor wafer by a wafer holding mechanism, grinding a back surface of the semiconductor wafer held by the wafer holding mechanism, detecting opening of a bottom face
10 of the groove during the back surface grinding process to determine timing for finishing the back surface grinding. The opening of the groove can be detected by means of a light sensor for detecting light passing through the groove or a microwave sensor for detecting
15 a microwave passing through the groove. In addition, it is possible to suck air inside the groove so as to detect the opening of the groove by a pressure rise in the air inside the groove.